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## THE FAUNA OF THE PRAIRIES.

BY J. A. ALLEN.

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IN an article in a previous number of the *NATURALIST*,\* attention was invited to some of the distinctive features of the primitive flora of the prairies. In the present paper, which forms in some measure a sequel to that, will be noticed the more prominent peculiarities of the fauna of the same region.†

The general facies of the fauna of the prairies, as well as of the flora, are determined by a few predominating species. The diversity of the animal and vegetable life of a given region being dependent upon the diversity of its physical features, one at all versed in the general principles of zoological and botanical geography, would hence never anticipate finding on level plains the highly varied life one constantly meets with in regions broken by mountain chains and valleys. Woodless regions being also far less prolific in species than wooded districts, the prairies, with their level surface and general absence of timber, hence present conditions in a high degree conducive to the production of the slightly varied fauna and flora they are found to naturally support.

On entering upon the prairies from the eastward, a marked change is met with in the mammalian fauna. Whilst few of the eastern species wholly disappear,‡ many of them become restricted to the narrow belts of woodland that border the streams, so that they thus cease to be either prominent or characteristic. This is eminently true of the wood-inhabiting Rodents and Carnivora, and also especially so of the bats. On the other hand, a few other species, which find their congenial homes in an open country, become at once numerous represented, some of them being peculiar to the prairies. A marked difference between the mammalian life of the prairies and that of the wooded region to the eastward thus results. Although the bats are generally wide-ranging species, most of those inhabiting the Northeastern

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\* Vol. IV, pp. 577-585, December, 1870.

† Northern Illinois, and Central and Western Iowa.

‡ See the writer's "Catalogue of the Mammals of Iowa." *Proc. Bost. Soc. Nat. Hist.*, Vol. XIII, pp. 178-194, January, 1870.

States being found throughout nearly the whole continent, they are dependent for shelter upon the forests, or the caverns here and there afforded by a somewhat broken country. On the prairies they are hence primitively few in number, in respect to individuals, and locally restricted, forming no important element in the fauna. As settlements increase, they soon multiply and become more uniformly distributed, the outbuildings of the farms affording them their required shelter.

The feline and ursine Carnivora, as the Bay Lynx (*Lynx rufus*), the Panther (*Felis concolor* Linn.), and the bear, are likewise rare on the prairies, as are also apparently the weasels. But the skunks, minks, foxes and wolves, being less dependent on a forest shelter, not only maintain their relative abundance, but, through the addition of a few strictly prairie species, are represented in more than their usual ratio at the East. Two species of the Western *Canidae*, the Prairie Wolf (*Canis latrans* Say), and the Swift or Kit Fox (*Vulpes fulvus* Aud. and Bach.), here make their first appearance, as does also the Badger (*Taxidea Americana* Waterh.) and, especially at the southward, the little Striped Skunk (*Mephitis bicolor* Gray).\*

The luxuriant and highly nutritious prairie grasses afford ample sustenance to the Herbivora, and in addition to the common Deer of the East (*Cervus Virginianus* Bodd.) the prairies were once preëminently the home of the elk and the buffalo, which have but recently been driven beyond the Missouri.

Of the Rodents, one or two species only are known to disappear near the prairie border. These are the little Chickaree, or Red Squirrel (*Sciurus Hudsonius* Pallas), which is to a great extent a northern and a pine-wood species, and the Woodchuck (*Arctomys monax* Gmel.), which seems to be almost unknown much to the westward of the Mississippi. A Vesper Mouse (*Hesperomys Michiganensis* Wag.), the Mississippi Fox Squirrel (*Sciurus Ludovicianus* Custis), — the latter, of course, a woodland species — two Ground Squirrels (*Spermophilus tridecem-lineatus* Aud. and Bach., and *S. Franklini* Rich.), and the Pouched Gopher (*Geomys bursarius* Rich.), — a singular and strictly prairie animal — add at least five

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\* This species has but recently been made known as an inhabitant of Central Iowa (see AMERICAN NATURALIST, Vol. IV, p. 376, August, 1870), whence the writer has received two skins of this animal from Professor H. W. Parker, of Grinnell. The writer has also recently learned of its occurrence as a rather common species in Missouri and in Southern Illinois.

of the most characteristic and most numerous species of the prairies. The peculiar habits of the three last named render them also among the most interesting.

The Bird fauna of the prairies presents peculiarities similar to the mammalian. Whilst nearly all the birds of eastern North America occur here,\* most of the woodland species exist only as either sparse residents or casual visitors during their migrations, a few either wholly western or strictly prairie species, making up the bulk of the summer residents. The narrow timber belts that intersect the prairies are hence in summer comparatively quiet and tenantless. Even such widely distributed and generally abundant species as the robin, the blue bird and the chipping and song sparrows, are rarely met with in the breeding season in the unsettled districts. The swallows are also rare, as are all the species that depend upon forest shelter for nesting places. The field sparrows of the East, as the Yellow-winged (*Coturniculus passerinus* Bon.), the Field (*Spizella pusilla* Bon.), the Bay-winged (*Poetes gramineus* Baird), and the Savanna (*Passerculus savanna*), and especially the Black-throated Bunting (*Euspiza Americana* Bon.), and the Western Lark Finch (*Chondestes grammaca* Bon.), are characteristic and predominant kinds which almost alone enliven the broad stretches of the wild prairie. Not less characteristic than either, however, are the Horned Lark (*Eremophila alpestris*), and the Meadow Starling (*Sturnella Ludoviciana* Swain.), whose song is here wilder and far more musical than at the East. Of the blackbirds inhabiting the grassy marshes, one, the Yellow-headed Troupial (*Xanthocephalus icterocephalus* Baird), is also strictly a bird of the prairies.

Other birds not usually common at the East are the Cerulean Warbler (*Dendroica caerulea* Bd.), perhaps the most common warbler of the prairie woodlands, and the beautiful Swallow-tailed Kite (*Nauclerus furcatus* Vigors), whose graceful flight and elegant form one never tires of watching as it skims over the prairies in search of its reptile food. The Prairie Hen forms the chief game bird, and is nowhere else so thoroughly at home. The slug-gish Turkey Buzzard (*Cathartes aura* Ill.) is also conspicuous here, and the Sand-hill Crane is also more or less frequent.

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\* See the writer's lists of the summer birds of Western Iowa and Northern Illinois, published in the Memoirs of the Boston Soc. Nat. Hist., Vol. I, pp. 493-503, 1868. Also a nominal list of the birds of Iowa, in the Report of the Geological Survey of that State, Vol. II, Appendix, January, 1871.

The reptiles afford mainly negative features. In consequence doubtless of the annual fires that have swept over the country for centuries, all the land species, including the turtles, the snakes and the lizards, are extremely scarce, and form but an insignificant feature.

Of the fishes, doubtless several species are more or less peculiar to the prairie streams and ponds, but I am unable to give at present any facts respecting them.

The land Mollusca have suffered similarly with the reptiles from the fiery ordeal to which for long ages they have been subjected, and are equally scarce and confined chiefly to the timbered river banks and bottoms. The fluviatile species are numerous, but do not appear to essentially differ specifically from those of the western waters generally.

The Insect fauna \* presents peculiarities similar to those of the flora, on which their existence is so intimately dependent. Certain groups are represented in an unusual variety of species and abundance of individuals, but the most numerous forms are often exceedingly localized. Other groups are again but sparsely represented. No country, however, it is to be hoped, is richer in Orthoptera (grasshoppers), either in species or individuals; and a few species of butterflies are also especially numerous, of which a small proportion seem to be strictly prairie forms. The Hemiptera and the Neuroptera exist in great abundance, the dragon flies being richly represented, both as respects the number of the species and the gorgeousness of their colors, many of which are rarely or never seen in the Atlantic States. The Hymenoptera, on the other hand, are comparatively few, especially the bees and wasps, notwithstanding the abundance of the flowers. If the Diptera, however, do not make up the equilibrium, it is not because mosquitoes and blood-sucking flies (*Tabanidæ*) are deficient either in variety of species, in number of individuals, in size, or in voracity.

As regards Crustacea, the single family by which this class is mainly represented, the craw-fishes, or *Astacidæ*, seems here to almost find its metropolis; and as for worms, the ponds and streams afford leeches of gigantic size.

In the above sketch, reference is had exclusively to the wild or

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\* For a partial list of the Butterflies see the Transactions of the Chicago Academy, Vol. 1, pp. 326-337, 1870.

unreclaimed prairies ; but in the long-settled parts of the prairie, great modifications of the original fauna have already taken place. No sooner does the pioneer encroach upon these districts of unrivalled agricultural resources than the larger mammalia at once and forever disappear. The elk, the buffalo and the beaver are the first to be exterminated, and soon after them must follow the deer and the wolves.\* The small rodents perhaps for a time increase in numbers, especially the ground squirrels and probably the field mice, as the farmer's crops afford them abundant sustenance, their great fecundity and reclusive habits further protecting them from diminution. The Pouched Gopher, from its remarkable subterranean habits, defies all means, except poison, that may be used for its extermination. Rarely coming to the surface, and only at night, the settler finds it nightly throwing up its little hillocks of earth in his garden, and even around his very door, as with the boldest impunity it digs its extensive galleries, uprooting the farmer's favorite plants, and destroying his fruit trees by feeding in winter upon their roots. The bats, everywhere in our country beneficial to the agriculturalist, soon domicile themselves in his outbuildings, and rapidly increase in numbers.

Scarcely less marked changes in the bird fauna likewise occur, although few of even the larger species are as yet either wholly exterminated or even much reduced in numbers, whilst many of the smaller kinds have rapidly increased. The artificial groves, the orchards and the fields become soon peopled with the half-domestic species that likewise frequent cultivated grounds at the East. The swallows, no longer restricted to the hollow trees of the limited forests for nesting sites, confidently occupy the numerous boxes erected for their use, or take advantage of the shelter afforded them by barns and outbuildings. The martin and the barn swallow thus soon become numerous, and colonies of the cliff swallow, migrating perhaps from distant regions, soon construct their nests beneath the eaves of barns and of public buildings, and are not only undisturbed but cordially welcomed. The poor chimney swifts alone seek in vain for a home, for bricks and stone being scarce, the necessary stove-pipe substitute for chimneys, or the various patented devices invented to take the place

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\*The Prairie Wolf (*Canis latrans*) is well known to have been formerly abundant as far east as Illinois. (See "Notes on Illinois," in the Illinois Monthly Magazine for July, 1861.)

of bricks and mortar, unfortunately rarely afford them convenient nesting places.

In traversing a new country, one is often struck with the differences in the habits that many of the birds present, from those familiar to him as characteristic of the same species in long settled districts. The unsuspiciousness of the blue jay and the crow at the West, teaches us that the distrustfulness of man, exhibited by these birds at the East, is an acquired trait, while one is surprised to see the meadow lark, so wild and cautious in the older states, singing with the utmost confidence from the roofs of the houses in the embryo villages on the newly settled prairies.

In regard to the changes in the numerical proportions of the species of the lower classes of animals, especially of the insects, space would fail, even if they were known, as unfortunately to a great extent they are not, to fully detail the disturbances that follow man's occupation of the country. The destructive influence of the swine upon certain species, when these animals are allowed to run at large, is, in some cases, too patent to be passed over unnoticed, even in the present cursory sketch. The grasshoppers, during their times of periodic abundance, afford them, by no means unsavory meals; but their fondness for the river mussels (*Unionidæ*) is excessive. These they systematically hunt in the shallower parts of the rivers, especially in dry seasons, till for miles, in some cases, they seem to have thoroughly exterminated them; and they also search for the craw-fishes, which everywhere abound in the marshes, with similar avidity, and must soon greatly diminish their numbers. It may be remarked, in conclusion, that the fauna of the prairies is not of so high a type as that of the adjoining, more diversified, wooded districts situated under the same parallels. There are fewer carnivora and more rodents, the preponderance of the latter being greater than at the eastward. In other classes, especially among insects, the lower groups, as compared with the higher, are there both relatively and absolutely more numerous represented. In short, as in the flora, so also in the fauna, there is a simplicity and uniformity that gives to both a comparatively low and uniform character.